What Is Claimed Is:

1. An aerosol tip mechanism for an aerosol-type dispenser for dispensing liquid content, the aerosol tip mechanism comprising:

a flexible outer shell having an outlet portion;

a rigid cap portion adapted to receive the outlet portion of the flexible outer shell, the rigid cap portion constraining a lateral motion of the outlet portion of the outer shell; and

a rigid nozzle portion having a rigid shaft received within the outlet portion of the flexible outer shell and interfacing said outlet portion of the outer shell to form a first normally-closed valve;

wherein the rigid cap portion symmetrically centers the outlet portion of the flexible outer shell around the rigid shaft of the nozzle.

2. The aerosol tip mechanism of claim 1, further comprising:

a swirling chamber laterally delimited by the rigid shaft and interior of the cap portion, and vertically delimited by the outlet portion of the outer shell;

wherein liquid content of the swirling chamber is expelled from the swirling chamber via the first normally-closed valve.

3. The aerosol tip mechanism of claim 2, wherein the aerosol tip mechanism is in fluid communication with a liquid reservoir, and wherein the rigid nozzle portion includes a plurality of fluid channels, the plurality of fluid channels leading to a plurality of gradually curved spiral feed channels, each spiral feed channel expelling liquid in a spiral path in the swirling chamber, the plurality of spiral feed channels being gradually curved to minimize energy losses of the liquid as the liquid flows through the feed channels.

4. The aerosol tip mechanism of claim 1, wherein the cap portion includes an axially extending latch member and the rigid nozzle portion includes a groove adapted to receive the latch member of the cap portion to provide an interlocking fit between the cap portion and the nozzle portion.

5. The aerosol tip mechanism of claim 2, wherein the cap portion has lower and upper portions, wherein interior radial edge of the lower portion of the cap portion and the rigid shaft of the nozzle portion are separated by a fixed clearance distance, the clearance distance defining a lateral extent of the swirling chamber.

6. The aerosol tip mechanism of claim 3, wherein the outlet portion of the flexible outer shell distends in a direction away from the rigid shaft during an opening of the normally-closed valve, whereby an initial point of separation between the outlet portion of the flexible outer shell and the rigid shaft is substantially closed when a final point of separation between the outlet portion and the rigid shaft is open.

7. An aerosol tip mechanism for an aerosol-type dispenser for dispensing liquid content by application of pressure, the aerosol tip mechanism comprising:

a flexible outer shell having an outlet portion;

a rigid cap portion having a boot-shaped segment adapted to receive the outlet portion of the flexible outer shell, the boot-shaped segment constraining a lateral motion of the outlet portion of the outer shell;

a rigid nozzle portion having a rigid shaft received within the outlet portion of the flexible outer shell and interfacing said outlet portion of the outer shell to form a first normally-closed valve; and

a swirling chamber laterally delimited by the rigid shaft and interior of the cap portion, and vertically delimited by the outlet portion of the outer shell;

wherein the boot-shaped segment of the cap portion symmetrically centers the outlet portion of the flexible outer shell around the rigid shaft of the nozzle, and wherein liquid content of the swirling chamber is expelled from the swirling chamber via the first normally-closed valve.

8. The aerosol tip mechanism of claim 7, wherein the aerosol tip mechanism is in fluid communication via a second one-way valve with a liquid reservoir, and wherein the rigid nozzle portion includes a plurality of fluid channels, the plurality of fluid channels leading to a plurality of gradually curved spiral feed channels, each spiral feed channel expelling liquid in a spiral path in the swirling chamber, the plurality of spiral feed channels being gradually curved to minimize energy losses of the liquid as the liquid flows through the feed channels.

9. The aerosol tip of claim 8, wherein each of the plurality of spiral feed channels, at an end proximate to the rigid shaft, includes a ramp element which diverts channeled fluid into the swirling chamber at upwardly sloping angle.

10. The aerosol tip of claim 9, wherein each of the plurality of spiral feed channels releases fluid in a trajectory into the swirling chamber via a ramp element, each trajectory being substantially separated from trajectories of liquid from other feed channels such that minimal interference occurs between fluid traveling in separate trajectories.

11. The aerosol tip mechanism of claim 8, wherein the cap portion includes an axially extending latch member and the rigid nozzle portion includes a groove adapted to receive the latch member of the rigid cap portion to provide an interlocking fit between the cap portion and the nozzle portion.

12. The aerosol tip mechanism of claim 8, wherein the outlet portion of the flexible outer shell distends in a direction away from the rigid shaft during an opening of the first normally-closed one-way valve, whereby an initial point of separation between the outlet portion of the flexible outer shell and the rigid shaft is substantially closed when a final point of separation between the outlet portion and the rigid shaft is open.

13. A method of optimally controlling proper interface of components forming an aerosol tip mechanism, the aerosol tip having a flexible outer shell with an outlet portion; a rigid cap portion; and a rigid nozzle portion having a rigid shaft received within the outlet portion of the flexible outer shell and interfacing said outlet portion of the outer shell to form a first normally-closed valve, the method comprising the steps of:

constraining a lateral motion of the outlet portion of the flexible outer shell by interfacing the rigid cap portion with the outlet portion; and

arranging the outlet portion of the flexible outer shell around the rigid shaft, whereby symmetrical arrangement of the outlet portion of the flexible outer shell relative to the rigid shaft is achieved by the interface of the rigid cap portion and the outlet portion.

14. A method of optimally controlling the size of fluid particles discharged from an aerosol tip mechanism having a plurality of fluid channels forming a portion of fluid conduit to a swirling chamber contained within the aerosol tip mechanism, the method comprising:

minimizing a length of the plurality of fluid channels; and

minimizing a rate of change of width of the plurality of fluid channels;

whereby head loss is minimized without having to adjust the length of the plurality of fluid channels, and pressure differentials and celerity in the plurality of fluid channels are maximized.

15. The method of claim 14, wherein the plurality of fluid channels are connected to a plurality of spiral feed channels, the method further comprising:

minimizing a K factor in transition between the fluid channels and the spiral feed channels.

16. The method of claim 15, further comprising the step of:

reducing energy losses in the plurality of spiral feed channels by minimizing a length to diameter ratio of the spiral feed channels.

17. The method of claim 16, the method further comprising the step of:

releasing fluid from the plurality of spiral feed channels in a plurality of trajectories into the swirling chamber via a ramp element, each trajectory being substantially separated such that minimal interference occurs between fluid traveling in the separate trajectories.

18. The method of claim 17, wherein the plurality of trajectories are spirals.

19. The method of claim 18, wherein the plurality of trajectories are vertically separated.